

WHAT IS CLAIMED IS:

1. A method of manufacturing a thin film transistor including:
 - a channel region formed in a non-single crystal silicon thin film on a substrate,
 - first and second regions of a first conduction type formed in the non-single crystal silicon thin film to be separated with the channel region therebetween; and
 - third regions of the conduction type opposite to the first conduction type which are formed between the first region and the channel region and between the second region and the channel region, the channel region being of the conduction type opposite to the first conduction type, the method comprising:
 - forming the non-single crystal silicon thin film on the substrate;
 - forming the third regions by ion implantation of an impurity of the second conduction type opposite to the first condition type into a portion of the non-single crystal silicon thin film;
 - forming a gate electrode on the third regions of the non-single crystal silicon thin film through a gate insulation film; and
 - forming the first region and the second region by ion implantation of an impurity of the first condition type with a dosage smaller than that applied during the formation of the third regions.
2. A method of manufacturing a thin film transistor, comprising a channel region formed in a non-single crystal silicon thin film on a substrate, first and second regions of a first conduction type formed in the non-single crystal silicon thin film to be separated with the channel region therebetween, and third regions of the conduction type opposite to the first conduction type which are formed between the first region and the channel region and between the second region and the channel region, the method comprising:
 - forming the non-single crystal silicon thin film on the substrate;
 - forming a gate electrode on the non-single crystal silicon thin film through a gate insulation film;
 - forming the third regions positioned adjacent to the channel region by ion implantation of an impurity of the second conduction type opposite to the first conduction type using the gate electrode as a mask and a mask material which covers the first region and the second region; and

forming the first region and the second region adjacent to the third regions of the non-single crystal silicon thin film by ion implantation of an impurity of the first conduction type with a dosage smaller than that applied during the formation of the third regions.

3. A method of manufacturing a thin film transistor used for a liquid crystal display device having a complementary thin film transistor with both P-type and N-type transistors, a channel region, first and second regions of a first conduction type separated by the channel region, and a third region of a second conduction type opposite to the first conduction type, the method, comprising:

simultaneously forming the third region which comprises a transistor of the conduction type opposite to the first conduction type and the first region and the second region which comprise a transistor of the conduction type opposite to the first conduction type.

4. A method of manufacturing a thin film transistor, comprising:

depositing an amorphous silicon thin film on a substrate;

irradiating the amorphous silicon thin film with a laser beam to obtain a crystallized polysilicon thin film;

forming a polysilicon island by patterning the polysilicon thin film obtained by laser irradiation, forming a gate insulation film on the polysilicon island and forming a gate electrode on the gate insulation film;

forming an insulation layer to cover at least a portion of an outer edge of the polysilicon island;

forming a source layer and a drain layer by introducing an impurity into the polysilicon island using the gate electrode and the insulation layer as masks; and

forming a source electrode and a drain electrode.

5. A method of manufacturing a thin film transistor, comprising:

forming a semiconductor thin film island on a substrate;

forming a source layer and a drain layer by selectively introducing an impurity into the semiconductor thin film island; and

forming a gate electrode opposite to the semiconductor thin film island through an insulation film;

wherein at least one of the source layer and the drain layer is formed inside the semiconductor thin film island at a predetermined distance from an outer edge of the semiconductor thin film island.

6. A method of manufacturing a thin film transistor, comprising:
 - forming a semiconductor thin film island on a substrate;
 - forming a source layer and a drain layer by selectively introducing an impurity into the semiconductor thin film island;
 - forming a first insulation film overlapping an outer edge of the semiconductor thin film island;
 - forming a second insulation film covering a surface of the semiconductor thin film island and the first insulation film; and
 - forming a gate electrode on the second insulation film.
7. The method according to claim 5, wherein the gate electrode is offset from the drain layer.